FINITE ELEMENT SIMULATION OF ARRAYS OF HOLLOW SPHERES STRUCTURES

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To my beloved mother and father

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ABSTRAK

Simulasi berangka bagi suatu model berulang daripada sel logam dibangunkan untuk siasatan asas kelakuan anjal bagi struktur sfera berongga. Morfologi sintaksis dan separa untule konfigurasi struktur sfera berongga ditetapkan menggunakan syarat-syarat sempadan yang sesuai dengan unit sel dan kekisi seluruh sfera berongga. Berdasarkan cadangam rajah modulus young relatif melawan ketumpatan relatif, tingkah laku struktur sfera berongga dengan mana-mana saiz dan bentuk dapat diterangkan tanpa mengambil kira sifat-sifat elastik.

ABSTRACT

The numerical simulation of a repetitive model of a cellular metal is developed for fundamental investigation of elastic behaviour of hollow sphere structures. Syntactic and partial morphologies of simple cubic configurations of hollow sphere structures are prescribed under boundary conditions corresponded to unit cell and whole hollow sphere lattice. Based on the proposed plotted diagram consists of relative Young's modulus versus relative density it is possible to explain behaviour of hollow sphere structure with any size and shape disregarded to its basic elastic properties.